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## UNUSUAL CONDITIONS FOUND IN THE KIDNEY, URETER AND BLADDER


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Anomalous urinary conditions have been regarded as very rare but in our experience we have found them quite common when worked out along urological lines. The following cases will illustrate several interesting and different types which we have encountered. Both congenital and acquired are, by no means, as unusual as we formerly supposed. In the daily round of practice any urologist who is on the alert will run across a substantial number of them and be more amazed at the variety of "disarrangements" found in the urinary tract of apparently normal individuals. The most common causes of these unusual conditions are (1) trauma, (2) surgical injuries or errors associated with operations, (3) mechanical obstruction, (4) inflammatory conditions, and (5) congenital.

### TRAUMA

*Case 1.* R. W., white, male, age 28; seen May 30, 1926. Past history negative except appendicitis eight years ago. March 18, 1926, patient fell fifteen feet, striking on feet and hips, followed by acute pain over abdomen and left side and passed bloody urine. Swelling was noticed in the left iliocostal region; after about ten days hematuria subsided but the swelling had persisted up to the present examination.

Examination: Upper extremities negative; slight enlargement in the left iliocostal region and tenderness on pressure.

Catheterization revealed an enlarged kidney on left side with a rotation of the axis of the pelvis to an anteroposterior position. As a result of the trauma sustained by the fall the kidney was thus displaced. The dislocated kidney may be seen, (*Plate 1*). Exploration advised.

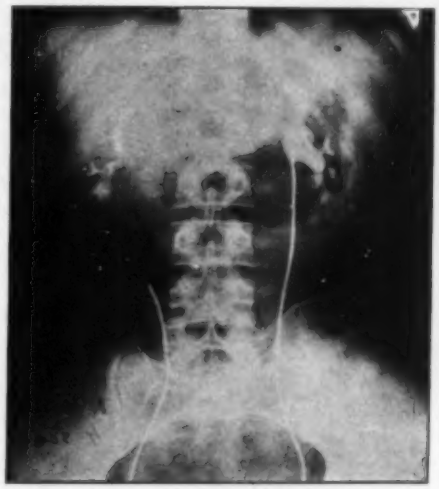

PLATE I

This anomaly is due purely to trauma, one of the many that we find in doing routine urological examination.

### SURGICAL INJURIES OR ERRORS ASSOCIATED WITH OPERATIONS

*Case 2.* This illustrates two things: (1) errors in diagnosis and (2) useless operations.

History: White woman, age 36; admitted to University Hospital, April 13, 1924. Chief complaint pain in the right side, frequency and burning on urination. Four weeks previous to admittance patient complained of severe pains in the right kidney region. This had continued more or less since, with blood and at times sandy material in the urine. Pain radiated to the genitals and right leg. Patient has had these attacks for several years, but the real trouble was never located. Past history is extremely interesting. Eleven years ago patient had right ovary removed. Six weeks later on account of the same character of pain she was operated for adhesions, which resulted from the first operation. Three months later the gall bladder was drained. One year later, as pain still persisted, was operated on for adhesions,

—second such operation. One year later, or nine years ago, another operation for adhesions. Eight years ago had a partial hysterectomy, without a permanent cure. Three years ago patient had two convulsions, followed by marked uremia and sepsis, with headaches, dyspnea and some edema, and made a slow recovery. Two years ago patient had pneumonia.

Examination: Large woman, abdomen had three scars as a result of previous operations. Cystoscopic examination showed a low-grade inflammation over trigonal region and base of bladder. No obstruction found in either ureter. Left urine was normal. Right side able to aspirate pus. Functional test entirely negative on right. Normal on left. (*Plate 2*) Radi-

PLATE II

ogram made showing a stone in right upper calyx about one inch in diameter. Nephrectomy was performed. Results uneventful. The pathological report on kidney removed was a fibro-blastoma. From history this woman had at least six useless operations, all of which would have been avoided had a complete urological examination been made.

*Case 3.* Mrs. B. C. W., white woman, age 40; no history of pregnancies. Hysterectomy for fibroid tumor January 16, 1926. Following operation patient had rather a stormy time. A great deal of pain was noticed in the right lower ureteral region and up to the kidney. About thirteen days later a watery discharge was noted pasing from the vagina. This was quite profuse at times. Later it contained a certain amount of pus, associated with chills and fever. Patient was referred to us for urological diagnosis, which was as follows: Bladder capacity, four ounces; low-grade trigonitis and inflammation over base and lateral sides of bladder. Left ureter admitted a size five catheter with ease. The right orifice obstructed about one inch from the vesicle opening. Indigo-carmin functional test made. The dye appeared in left side in five minutes. None at all from right, but in fifteen minutes a bluish, watery fluid came through the vagina. Vaginal examination revealed a very small opening in the cervix, through which this material was passing. On account of the chills and fever and poor drainage, and the other kidney being perfectly normal, we advised a nephrectomy of the right kidney. Three days later we removed the right kidney, with an uneventful recovery. Pathological examination showed that considerable destruction had already taken place and we believe that we did the best thing for her future health. This is also one of the cases which we would class as surgical errors.

PLATE III

*Case 4.* (Very similar to Case 3). Mrs. J. B. T., age 39, white, septic and anemic in appearance. Temperature 101; BP, 162-108. Complained of pain in the right kidney region, frequency, nocturia and a foul vaginal discharge. Hysterectomy was done eight years ago. A short time following the operation a watery discharge was noticed from the vagina, which had not caused discomfort or pain until six months ago. About ten days ago she

began to run a daily temperature, accompained by chills. Examination showed heart and lungs negative. Tenderness was felt over the right kidney and along the course of the ureter. Urethra was clear but small.

PLATE IV

Cystoscopic: Bladder showed a low-grade inflammation over trigonal region and base. Obstruction encountered two inches from the orifice of the right side. Catheter passed up the left with no ob-

PLATE V

struction. Indigocarmin functional test showed four and one-half minutes on left, nothing on right. Through the small opening near the stump of the cervix a watery, purulent discharge, slightly colored, was noticed after about twenty minutes. We then passed a catheter No. 6 into the opening for about two inches, and aspirated 20 cc. of uro-purulent material. Upon digital examination a fluctulant mass was felt, which we thought to be a diverticulum associated with hydro-ureter. We cautiously injected 10 cc. of sodii iodide 15 per cent and made a radiogram which showed us that a portion of the fluid remained in the diverticulum and the remainder passed up through the hydro-ureter to the pelvis of the kidney, showing an enlarged kidney with dilated pelvis. We then passed the catheter up to the pelvis and aspirated 40 cc. of uro-purulent fluid, showing a suppurated condition of hydronephrosis.

A second radiogram was made, plates 4 and 5 showing beautifully the catheter in place and its tortuous course. The left kidney function and analysis was practically normal and the right kidney was markedly enlarged and was complicated by a hydronephrosis, hydro-ureter and diverticulum near the communication of the ureter at the stump of the cervix. The opening was insufficient for proper drainage, and the right vesico-ureteral orifice was entirely obliterated; consequently we advised nephrectomy.

This case is another anomaly due to surgical misfortune.

MECHANICAL OBSTRUCTION

*Case 5.* This case illustrates the type due to mechanical obstruction which may be caused by stones, tumors, angulations and strictures.

Mrs. D., white, age 23, married; referred to us May 26, 1926, complaining of pain in right kidney region and daily temperature.

Examination: Urine contained many pus cells; albumin, two plus.

Cystoscopic: Right ureteral orifice was inflamed and golf ball type. Catheter met an obstruction in upper third of right ureter. By the use of a stylet the catheter was introduced up to the kidney pelvis, and 30 cc. of uro-purulent material was obtained. A catheter was easily introduced up the left ureter.

Indigocarmin functional test showed on the left in four and one-half minutes, and six and one-half on right. Three cc. of fifteen per cent sodii iodide was introduced into each catheter and a radiogram was made, which showed a stricture about one and one-half inches below the uretero-

pelvic junction of the right kidney. (*Plate 6*) following two dilatations clinical symptoms disappeared.

PLATE VI

INFLAMMATORY TYPE

Chronic inflammation of the renal pelvis, calyces and ureters very often is followed by tissue changes such as thickening, sclerosis, contractures with partial or complete obliteration in one or more of the calyces. The following case will illustrate one of these types:

*Case 6.* White male, age 53; referred to us April 18, 1926, complaining of pain in the left kidney region. About four months previous had an attack of pyelitis, accompanied by chills, fever and pyemia.

Examination showed urine cloudy and acid, with a few pus and epithelial cells, and few bacteria.

Cystoscopic Examination: Left ureteral orifice was golf ball type; the right practically normal. Catheters were passed to both kidneys. Indigocarmin functional test was made showing on the right in five minutes, on the left in seven minutes. Pyelograms were made, which showed the right pelvis normal.

Left: The calyces and pelvis are dilated and distorted. There is a general irregularity of outline, c l u b b i n g and rounding of the ends of the calyces, also a predominance of the dilatation in the calyces rather than the true pelvis.

In pyelitis it will be found that infections predominant in the renal pelvis are usually accompanied by a considerable degree of inflammatory dilatation. Whereas, infections predominant in the renal parenchyma usually cause but slight inflammatory changes in the pelvic outline. Condition is shown in *Plate 7.*

PLATE VII

CONGENITAL TYPE

The congenital conditions we have met with are polycystic kidney and bilateral hydronephrotic kidney, bilateral hydroureters with two ureters on left side. The polycystic kidney will not be discussed at length as we reported four cases of this condition in a former paper; (S. M. J., April, 1926.)

To illustrate the other type we have a very unusual case to present,—a dilated bilateral ureterovesical orifice with hydroureters, with two ureters on left side, or else a rudimentary kidney with its ureter extending downward and inserting into the larger ureter at the junction of the ureter and bladder.

*Case 7.* Mrs. O. H., age 19, white; came to us May 1, 1926. Married one and one-half years; no pregnancies; usual diseases of childhood.

Family History: Nothing of interest bearing on case.

Present Illness: Began eight years ago with pain in the left upper abdominal quadrant and back. Non-radiating; occasional nausea and vomiting, frequency of urination with passing of occasional clotted blood in urine.

Examination: Urinalysis,—color, dark and cloudy. Sp. Gr. 1013. Neutral reac-

tion. Trace of albumin. Some epithelial pus cells, with debris. Chest negative. In the abdomen there was a dull pain on pressure over the lower border of the ribs on the left side, in the region of the kidney.

Cystoscopic Examination: Urethra easily admitted the instrument. Capacity, two ounces. Mucous membrane somewhat congested at apex of trigone, due to a low-grade chronic inflammation. Right ureteral orifice somewhat enlarged and everted. Left, very much dilated, appearing about one-half inch in diameter and resembling opening of a diverticulum. Catheters introduced easily into each kidney. Upon making the kidney functional test the dye appeared from the right kidney in five minutes and from the left in seven minutes.

An X-ray plate was made; no stone was seen, but both kidneys enlarged.

With the ureteral orifices dilated as they were it was evident that if a cystogram was made it would be determined if the fluid introduced into the bladder would go to the kidneys. Four ounces of fifteen per cent sodii iodide was injected into the bladder. An X-ray was made (*Plate 8*)

PLATE VIII

which reveals hydronephrosis and hydroureter on the right side and a double hydro-ureter and nephrosis on the left. One ureter markedly enlarged. It is interesting to note the course of the smaller. At the uretero-vesicle junction it appears to pass under and upward to the uteropelvic junction, then backward to the upper pole of the kidney, which appears to be double, smaller and posterior.

The important facts concerning this case are: That the urinary tract has no apparent obstruction to urinary outflow and no interference with the mechanism of urination. The bladder is markedly contracted. The ureters and pelvis are markedly dilated. There is no evidence of obstruction anywhere along the urinary tract. There are two hydro-ureters on the left side. There are at present slight signs of infection. The small ureter, as shown in plate may be extending from a rudimentary second kidney on that side. We advised an exploratory operation, which was refused. Therefore it is evident that no permanent relief may be given this patient.

These cases are fairly typical of the abnormalities given under the different classifications which are encountered and discovered by diligent urological application, assisted by the various means which are now at our command.

## THE PRESENT STATUS OF OUR KNOWLEDGE CONCERNING THE ETIOLOGY AND TREATMENT OF PERNICIOUS ANEMIA*

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Before entering into a discussion concerning the etiology and treatment of this disease entity it is necessary to make clear what is meant by the term, "Pernicious anemia". There are many clinical conditions which give a blood picture similar to that which is typical of pernicious anemia, but a careful analysis of the case will usually suffice to reveal the true source of the anemia. Some of these conditions will be considered in more detail later, as the mechanism of the anemia occurring in them is at least partially understood. A review of these known hemolytic agents suggests possible factors for the production of the anemia in true pernicious anemia. This paper is devoted to a consideration of the clinical entity first accurately described by Addison[1] in 1849 and later by Biermer[2] in 1872. The clinical picture presented is quite definite, being characterized by a severe anemia, hemolytic in type, which varies quite mark-

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edly in degree. In addition to the anemia there occurs an atrophic type of glossitis, an absence of free hydrochloric acid in the gastric contents and the presence of symptoms depending on degenerative changes in the posterior and lateral columns of the spinal cord. During the course of the disease marked remissions of symptoms generally occur.

### ETIOLOGY

There have been many papers written on the etiology of pernicious anemia but in each paper, sooner or later, the admission is made that "the etiology of pernicious anemia is unknown". This statement is still true when using the term etiology in its narrow sense, meaning thereby the single specific cause of the disease. On the other hand, we do know quite definitely concerning a number of other etiological factors which play a part in the disease. Our knowledge of these factors offers considerable aid in determining the nature of the single specific cause of the condition.

Heredity has long been thought to play a definite part in the occurrence of pernicious anemia. Such a conception is based on the occurrence of the disease in two or more members of the same family, although the individuals lived at different times and under different circumstances. The disease has been reported as occurring in lineal descendants of a single family in two, three and even four generations. The hypothesis has been presented that a predisposition to the disease may be transmitted as a dominant mendelian trait. Barker[4] has discussed this question: "if so, why should not the familial incidence of pernicious anemia be more striking than it actually is? Ought not half or nearly half of all of the members of the family be affected?" In answer to these questions he mentions several possibilities: 1 Since the disease occurs only late in life many members of the family die before they have a chance to show the symptoms. 2 Many mild cases may be overlooked. 3 In addition to an inherited tendency to the disease, an "external" or "releasing" factor is essential to produce the symptoms. If heredity actually does play a part it seems most likely that this third explanation will prove to be the true one. Granted that a predisposition to the disease may be inherited we still have a difficult problem to solve. As Barker[4] also points out, in part: Does this predisposition consist in a congenitally deficient hemopoietic system or a congenital hyperactivity of the blood destroying organs? Are endocrine disturbances present which may upset the balance between blood cell formation and blood cell destruction? Is there a defective gastro-intestinal tract which allows the absorption of toxic material which would not be absorbed normally? Is there a congenital defect in the detoxication mechanism of the body, whatever that may be? However, although these questions are interesting, there is little actual evidence that heredity is an important factor in the etiology of pernicious anemia.

It is generally accepted that pernicious anemia is a disease limited to the white race and it rarely, if ever, occurs in the negro. Against this belief, however, is the statement by Jamison[5] that pernicious anemia occurs as frequently in the negro as in the white man. It is thus quite probable that race plays no important role in the etiology of pernicious anemia.

There is a very definite age incidence in this disease as the symptoms appear in middle life, most frequently between the ages of 40 and 70 years. It can be stated safely that having a case of severe anemia in a patient under 35 years of age, the burden of proof is on the man who calls it true pernicious anemia. This factor of age incidence suggests some very interesting hypotheses regarding the specific cause of the disease. This is the age of cancer. Possibly the abnormal cellular activity of the bone marrow may have a background similar to the abnormal cellular growth seen in cancer. This is also the age when oral infection is rife. Carious teeth, apical abscesses and chronically infected tonsils and sinuses are most prevalent. These conditions are favorable for the absorption of bacterial toxins from the upper respiratory and gastro-intestinal tracts. Due to the prevalence of poor oral hygiene, this is the age when proper mastication of food is frequently impossible and as a result of such conditions many patients are on diets which are highly restricted for mechanical reason. The hypotheses of vitamin deficiency, deficiency of certain essential protein fractions, etc., may be founded on such a basis. In short the etiological factor of age incidence is most clearly defined and very well may be a most important predisposing aid to the specific cause of the disease.

Many disease conditions have been re-

ported as predisposing or etiological factors in the production of pernicious anemia. Endocrine dyscrasias, especially those related to the thyroid gland and suprarenal bodies, have been thought to be of significance in this connection. It has long been recognized that myxedema may produce a blood picture similar to that found in pernicious anemia. In myxedema an achlorhydria may also be present together with abnormal sensations of pain in the extremities. Such a combination of symptoms strongly resembles the clinical picture of pernicious anemia. This disease has been reported as following typhoid fever[6] and various other acute infections. Association has been made with such conditions as renal insufficiency[7], intestinal parasites and intestinal obstruction[8]. Such associations should all be considered as coincidental, however, as no one of these conditions occurs frequently enough in connection with pernicious anemia to establish any significant relationship.

In the analysis of the contributing etiological factors in pernicious anemia which we have just completed, there are two out-standing suggestions. In the first place a predisposition to the disease may be inherited. In the second place the age incidence lies between 40 and 70 years.

The pathological picture at autopsy, while generally considered to be rather disappointing and unsatisfactory does give three suggestions which are of great value. The characteristic findings at autopsy are:

(1) Evidences of blood cell destruction as indicated by enlargement and over-activity of the spleen, deposits of iron in the liver, spleen, bone marrow and other organs, over-activity in portions of the bone marrow and an icteric tint to the skin.

(2) Inhibition of hemopoietic activity as evidenced by fatty replacement of other portions of the bone marrow.

(3) Evidences of a general severe toxemia, indicated by atrophic changes in the gastro-intestinal tract, fatty degeneration of heart muscle and degenerative changes in the posterior and lateral columns of the spinal cord. Thus, judging from the pathology alone a single toxin could possibly produce the entire clinical picture for many toxins are known which are hemolytic and which inhibit marrow activity

A comprehensive analysis and linking of symptoms gives us information similar to that obtained from the pathology. The paresthesias and other cord symptoms, the hemolytic anemia, the inhibition of hemopoietic activity, and the absence of free hydrochloric acid may all be caused by a severe general toxemia. The oral lesions and atrophy of the tongue may also be caused by toxemia, although many men have the opinion that these lesions are a contributing factor to the toxemia rather than a result of the toxemia. The presence of gastro-intestinal lesions in pernicious anemia has attracted much attention to the gastro-intestinal tract, and has led to exhaustive searches for the cause of the toxemia in this tract.

The laboratory findings of significance in this disease are numerous. The blood shows a severe anemia, hemolytic in type. There is an excess of bilirubin in the blood stream, and a low cholesterol content of the blood plasma[9].

The urine shows nothing specific with the exception of an excess of urobilin which can be explained on the basis of abnormal red blood cell destruction. Gastric analysis shows an absence of free hydrochloric acid. While few cases of pernicious anemia have been reported where free hydrochloric acid was present in the gastric contents, it is the generally accepted opinion that free hydrochloric acid must be absent before the diagnosis may be made. Basal metabolic determinations and other tests to demonstrate endocrine activities have generally given no information of value in determining the etiology of this disease. Mackenzie[10] has pointed out that some few cases of pernicious anemia show a low basal metabolism and these patients improve under thyroid therapy. As has been mentioned before, myxedema may produce a severe anemia. It is possible that such cases as Mackenzie has seen have been cases of myxedema coincidentally associated with an achlorhydria. Bacteriological investigations have yielded many conflicting results. Since the time of Hunter there has been a group of investigators who believe that pernicious anemia is caused by a definite specific microorganism. Many organisms have been held under suspicion. The streptococcus, especially the green producing variety, has been isolated repeatedly from the tongue lesions, tonsils, teeth, mucosa of the gastro-intestinal tract and blood. Schneider[11] has recently brought the infectious theory to the foreground by demonstrating this organism deep in the muscle layers of the tongue in patients suffering from pernicious anemia. Schneider,

however, makes no claim that this organism is the specific etiologic factor in the disease. There are many other arguments supporting the infectious theory of etiology. The presence of oral lesions and gastro-intestinal disturbances for years preceding the onset of symptoms referable to the anemia, the evidence of a toxemia manifested by degenerative changes in the cord, etc., all indicate that the anemia itself is only a late manifestation of the disease. On the other hand, however, these organisms frequently found at autopsy and even during life, may merely be present as secondary invaders in tissues already damaged by some other unknown agent. Various other organisms have been recovered from the bone marrow, spleen and blood. These have all been in isolated cases, however, and an etiological relationship between the organism and the disease has never been established. A bacteriological search of the gastro-intestinal tract has revealed several organisms which are able, under certain conditions, to produce a toxin, hemolytic in power. The claim has been made for each of these organisms that it is probably the specific etiologic factor. Organisms which have received most notoriety in this respect are the Welch bacillus (12), strains of the colon bacillus (13) and strains of the monilia. The one convincing argument that no one of these organisms is the sole specific cause of pernicious anemia is the fact that they are all, more or less, normal inhabitants of the intestinal tract, and are present in many patients where no anemia occurs. It is quite possible, however, that as the result of some other primary cause, such as a change in reaction of the intestinal contents so that these organisms may occur higher in the intestinal tract than normally, or because of alterations in the permeability of the intestinal wall these organisms may lay a part in the hemolytic process. Investigations of the feces of patients suffering from pernicious anemia, aside from bacteriological studies, have been comparatively neglected. There in one fact, however, which is very evident and may be very significant. Stools of patients with pernicious anemia almost invariably demonstrate an abnormality in fat metabolism. This is shown by an excess of free fat in the stools. The fatty acid fraction is also generally increased. This observation may be explained in a number of ways. The diarrhea resulting from the absence of free hydrochloric acid in the stomach may cause such a rapid passage through the intestines that normal absorption of fat is prevented. The excess fat in the stool may be due to an excess intake of fat in the diet. Pancreatic lesions and deficiency in bile excretion may also cause an excess of fat in the stool.

In experimental animals the clinical picture of pernicious anemia has been produced in part by the administration or injection of many toxic substances. A large number of these substances probably never gain entrance to the human body and so need not be considered as possible etiological factors. Tyramin[14] is one of the substances which can produce, in guinea pigs, a picture quite similar to pernicious anemia. This fact is of great interest because tyramin is probably present quite frequently in the normal intestinal tract. It has been isolated from protein foods and may thus be ingested along with such foods. In addition to this fact tyramin can be formed from tyrosin by the action of strains of colon bacilli. Tyrosin is an anino acid frequently present in the intestinal tract. It is thus conceivable that if tyramin is present in abnormal amounts, or if for any other reason the permeability of the intestinal mucosa is altered, this toxin may be absorbed into the blood stream. The toxins from colon bacilli and the Welch bacilli have produced severe anemias in experimental animals but the clinical picture of pernicious anemia has not been duplicated. In regard to the possibility of hemolytic bacterial toxins being absorbed from the intestinal tract, it is interesting to note some observations made by Muelengracht[15]. Muelengracht reported five cases of pernicious anemia in which a stricture of the intestine was found. No bacterial studies were made in these cases but experimental work by Seyderhelm, Lehmann and Wichels[16] offers a suggestion relative to such an anemia. By making a stricture in the lower parts of the ileum in dogs, they were able to produce a hemolytic anemia in a few of the animals used. Bacteriological studies revealed the fact that in the animals which showed an anemia the flora of the small intestine was similar to that of the colon. In the dogs which did not develop an anemia the flora of the small intestine was normal. This suggests the possibility that ordinary inhabitants of the colon such as B. coli and B. Welchi, may be factors in producing anemia when for some reason they occur higher up in the intestine. Under the heading of experimental anemia should be mentioned

the anemia produced by the dibothriocephalus latus or fish-tapeworm. This anemia may be identical in appearance and characteristics with that of pernicious anemia. In these cases the hemolytic factor has been identified as the cholesterol ester of oleic acid. Cholesterol is the normal constituent of many body tissues and is found free in the blood stream. Fatty acids, such as oleic acids are absorbed by the normal intestinal tract daily. Bodansky[17] has shown that for some reason, as yet unknown, the distribution of free fatty acid in the blood is altered in hemolytic anemia. The concentration in the plasma is diminished while the concentration in the red cells is increased. The work of Bodansky as well as the work of many others indicates that the red blood cells take an active part in the metabolism of lipoids such as fatty acids, cholesterol and lecithin. It is therefore not hard to imagine that a disturbance in lipoid metabolism may seriously involve such structures as red blood cells whose stroma is so largely composed of lecithin. In this connection Evans[18] makes the rather pertinent remark "it is suggestive, at least, to recall that the two tissues which contain more lecithin than any others in the body are the envelopes of the red blood cells and the sheaths of the nerves, and the two outstanding features of pernicious anemia are a hemolytic anemia and a diffuse sclerosis of the spinal cord." As Evans further points out, the spleen is also apparently involved in some way with cholesterol metabolism. This fact makes the lipoid theory of etiology of pernicious anemia most interesting and suggestive.

The final line or direction of investigation in a search for the specific cause of pernicious anemia lies in the response of the patient to various types of therapy. The principal types of therapy at present are: (1) administration of hydrochloric acid; (2) transfusions; (3) arsenic, and (4) diet regulation.

The administration of hydrochloric acid relieves certain symtoms but does not alter the prognosis. Blood transfusion relieves the symptoms due to anemia but does not alter the course of the disease. Arsenic merely stimulates bone marrow and has a general toxic effect. The response of the patient to such therapy, therefore, throws no light on the specific cause of the disease.

The response of pernicious anemia patients to dietary treatment as administered during the past two years has been most encouraging. While it is far too soon to claim the cure of a disease which is characterized by prolonged remissions the outlook is most hopeful. The principles underlying the diet in use are (1) low fat content; (2) high protein content, especially liver and sweetbreads; (3) fresh vegetables, especially those high in vitamines B C and E. Such a diet may exert its beneficial influence in a number of ways. The low fat may reduce the available unsaturated fatty acids and thus reduce hemolysis according to the lipoid theory. It is well recognized, however, that the low fat element cannot be the sole beneficial factor. Liver is rich in nucleo proteins, phosphatids, etc. The liver also contains complex lipoids, such as cholesterol and lecithin. The vitamin content of liver is also high. In addition, liver probably contains a number of ferments of enzymes. There are so many factors concerned in liver therapy that further studies are essential before we can even speculate profitably as to the exact mechanism of the beneficial results obtained. Work now in progress in several laboratories may give us much valuable information before long.

In summing up the information available at the present time regarding the etiology of pernicious anemia, we learn: (1) from a study of the etiological factors that there is a definite age incidence of 40 to 70 years and that there may be an inherited predisposition to the disease; (2) from the pathology, symptomatology and experimental production of symptoms that the entire clinical picture may be produced by the chronic absorption of an hemolytic neurotrophic toxin which may be a bacterial product either from bacterial foci throughout the body or from bacteria in the intestinal tract, or may be a product of disturbances in lipoid metabolism; (3) from the response of symptoms to therapy, that the greatest benefit is to be derived from dietary regulation. This last factor is a strong argument that the toxin is metabolic in origin and not infectious.

### THE TREATMENT OF PERNICIOUS ANEMIA

The time honored method of treating anemias consists in the use of iron and arsenic. Iron being a constituent of hemoglobin, has been assumed to be lacking in anemia and its administration indicated. In certain types of anemia such reasoning is correct, but there is no evidence that lack of available iron plays any part

in pernicious anemia. On the contrary, there is probably an excess of iron available. Deposits of iron are characteristically found in the liver, spleen and bone marrow. There is no indication, therefore, in the light of our present knowledge, for administering inorganic iron in large amounts and thus adding to the digestive disturbances of the patient. It is important, however, to include in the diet foods which are comparatively rich in iron.

So far as we know, arsenic exerts its beneficial influence by stimulating the bone marrow and by its general tonic effect. If used discreetly and the dosage not pushed too high, arsenic does appear to aid somewhat in the treatment of pernicious anemia. The most convenient forms of arsenic to use are Fowler's solution and sodium caccodylate. Fowler's solution is familiar to every one and the dosage generally administered is 3 minims three times a day. The dosage is increased by one minim per dose each day until 10 minims per dose are given. Sodium caccodylate is given in 1 mgm. doses intramuscularly or intravenously two to three times a week for a series of ten or twelve administrations. A rest period of one week or so should then be allowed.

Because of the achlorhydria constantly present in pernicious anemia, the administration of hydrochloric acid is indicated and its use almost invariably benefits the patient symptomatically. The dosage varies from 40 to 60 minims of dilute hydrochloric acid three times a day. The mode of administration is important and a satisfactory method consists in giving 20 to 30 minims of dilute hydrochloric acid in buttermilk with each meal, followed by an additional 20 to 40 minims one-half hour after the meal. Gastro-intestinal and oral symptoms will usually improve to such an extent that frequently the patient decides it is no longer necessary to take the acid. It is probably very important, however, to continue the administration of acid indefinitely even in the absence of all symptoms.

Treatment directed at the spleen has been advocated by many men. The chief methods of attack have been by the use of X-ray and radium and by the surgical removal of the spleen. Transient improvement has occasionally followed such treatment, but it is generally agreed that the spleen is not the prime seat of the disease and that its removal does not materially alter the prognosis. At the present time splenectomy is rarely, if ever, performed as a therapeutic measure in pernicious anemia.

Bone marrow stimulants other than arsenic have been used and are still advocated by some workers. Germanium dioxide[19], while advocated by some men, in the hands of most workers has yielded discouraging results. Thorium "X"[20] and soluble radium salts[21] will stimulate the marrow, but are also toxic and their use is not generally advocated.

Many attempts have been made to sterilize the gastro-intestinal tract. The oral administration of a mixture of iodine, phenol and glycerin was used quite extensively twenty to thirty years ago. More recently dye therapy has been advocated and gentian violet[22] and other dyes have been tried. The rationale of such attempts is questionable. Assuming that the intestinal tract could be made sterile, would we not also lose the organisms which are almost essential to life?

Transfusion of blood has long been used in the treatment of anemia and in pernicious anemia it is still a most valuable method of therapy. Such a procedure will frequently carry a patient over a hemolytic crisis until a remission occurs. There are two general methods of administration of blood in use today, the so-called "indirect", or citrate method, and the "direct" method. Due to technical factors the indirect method is probably the safer one to use. The entire procedure can be accomplished by one man and less difficulty will be encountered if some unexpected delay should occur at any stage of the procedure. Reactions can be kept at a minimum if careful blood typing is carried out before the transfusion. Direct crossmatching should always be done as a check on the typing. Reactions may also be caused by the use of inadequately cleaned glassware and rubber tubing. The amount of blood given at any one time should not exceed 300 to 500 cc. The exact mechanism underlying the beneficial effect from transfusion is not entirely understood. The response is probably due to the combined effect of several factors. The mechanical addition of oxygen carrying corpuscles certainly relieves temporarily, the symptoms of severe anemia such as dyspnea. A socalled "megaloblastic crisis" is frequently observed following a transfusion or series of transfusions. This indicates that the transfusion either had a direct stimulating infuence on the hemopoietic organs or else removed or neutral-

ized some previously existing inhibition of hemopoietic activity. In this connection it is interesting again to follow the speculation of Evans[18]. Kipp[23] has pointed out that following a transfusion there is only a transient increase in blood cholesterol. This indicates a prompt utilization of the cholesterol added by the transfusion. Thus assuming the lipoid theory of etiology to be correct, it is conceivable that cholesterol may act as a neutralizing substance or antibody for the hemolytic agent. Thus, by rendering an appreciable amount of the toxin inert, temporary improvement is allowed. There may be other factors which play a part in the beneficial effects of transfusion, but little is known of the mechanism underlying them. It is thought by some that a series of three to four transfusions given in the course of several days will produce more lasting benefit than the same number of transfusions given over a period of several months.

The value of dietary treatment in pernicious anemia has been recognized for many years. Until recently the diets recommended have been chosen because of their protein and iron content and general nutritive values. The history of the role of diets in pernicious anemia will not be dwelt upon because of the lack of time. Whipple[24] and his co-workers have been chiefly responsible for our knowledge concerning the special value of particular food substances in the treatment of anemia. There is some evidence[25] that excess fat in the diet may be a contributing factor in the etiology of anemia. Koessler[26] and others have presented evidence indicating that certain vitamines are essential for blood cell formation. About two years ago, Minot and Murphy[27] incorporated these three principles just mentioned and introduced a special diet for the treatment of pernicious anemia. Quoting from their article, the diet for each day is composed as follows:

(1) From 120 to 240 gm. and even sometimes more, of cooked calf's or beef liver. An equal quantity of lamb's kidneys was substituted occasionally.

(2) One hundred and twenty grams or more of beef or mutton muscle meat.

(3) Not less than 300 gm. of vegetables containing from 1 to 10 per cent of carbohydrates, especially lettuce and spinach.

(4) From 250 to 500 gm. of fruit, especially peaches, apricots, strawberries, pineapple, oranges and grapefruit.

(5) About 40 gm. of fat derived from butter and cream, allowed in order to make the food attractive. However, animal fats and oils were excluded so far as possible.

(6) If desired, an egg and 240 gm. of milk.

(7) In addition to the above mentioned foods, breads, especially dry and crusty, potato, and cereals, in order to allow a total intake of between 2,000 and 3,000 calories composed usually of about 340 gm. of carbohydrate, 135 gm. of protein, and not more than 70 gm. of fat. Grossly sweet foods were not given, but sugar was allowed very sparingly.

Minot draws attention to the fact that such a diet is rich in iron and purine derivatives. He does not emphasize, however, that such a diet is also rich in vitamines, especially A B C and E, and that the fat intake is low. The adoption of such a diet in the treatment of pernicious anemia has been almost universal during the past year and encouraging results have been reported from many medical centers. In practically every experimental laboratory some one is trying to answer the question: why does liver aid in blood cell regeneration? The problem is being attacked from various sides. Is the reaction due to the vitamin content of the liver; to the presence of nucleo-proteins; to special enzymes or ferments as yet unknown, etc.? There is no answer as yet to these questions although work by Minot indicates that the same benefits may be obtained by the use of an alcoholic extract of liver which is iron-free and nearly protein-free. If this observation proves to be correct it would favor the belief that vitamins are probably the active factor.

A menu for such a diet may be made to be very appetizing and attractive. Various dietitians throughout the country have devised 30 or more different ways of preparing liver which vary from liver soup and liver cocktails to liver pie.

A final method of treatment which has been generally followed by most clinics but which has hardly been mentioned and certainly not emphasized is that which can be designated by the term oral hygiene. Infection must be removed and teeth restored before the patient can even take a rational diet. Regardless of the advice of the doctor the patient will drift back to a limited diet unless he can comfortably eat the type of food prescribed. There can be no successful treatment of pernicious anemia unless this fact is kept in mind.

In summarizing the treatment of pernicious anemia in outline form the following is suggested:

(1) Restoration of the oral hygiene.

(2) Administration of dilute hydrochloric acid.

(3) Dietary regulation—low fat, liver, 200 gm. per day, fresh fruits and green vegetables. Total calories 2,000 to 3,000 depending upon the activity of the patient.

(4) Transfusion if red cell count is below one million, five hundred thousand.

(5) Arsenic in small doses if desired.

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*Discussion*—Dr. Lea Riely, Oklahoma City.

It has always been a question in my mind whether pernicious anemia is a distinct clinical entity or not as we have so many factors operating on the blood stream in the act of either cutting down the erythropoiestic functions of the bone marrow or the direct hemolytic devastation on the blood that gives the identical blood pictures of the socalled primary or pernicious anemia. It was my good fortune to see a copy of Addison's original monograph on pernicious anemia and he did not altogether separate it with the trouble caused by the deficiency in the secretions of the suprarenal glands.

The author of the paper has so clearly brought out the many theories of the etiology of this trouble and all seem to have some weak points in trying to explain this rather unique syndrome.

The achylia, the characteristic blood picture, the nervous system involvement, the icteric tint to the skin, the maintenance of the body fat but the extreme weakness in one person and not occurring in the other when the same cause is acting shows that there must be some individual or even familial factor operating in every case. The common knowledge of how certain liver troubles as of cirrhosis and certain endocrine disturbances are associated with the blood picture also muddles the waters for a satisfactory explanation.

Pernicious anemia has never stood in the limelight so much as it has during the last eighteen months since Minot and Murphy have given the most satisfactory treatment which has ever been used and hardly a magazine but what has added something to this weird bit of pathology.

We trust that they will be able to explain some definite etiological factor so we can feel safe in calling it a clinical entity.

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## TREATMENT OF INDIVIDUALS VERSUS TREATMENT OF DISEASES*

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That which follows is an humble effort to contribute something that might help us to more correctly visualize, in its true perspective, the relationship between doctor and patient. All have marvelled at the wonderful strides made in the scientific medical world during the past half cen-

*Read before the Section on Obstetrics and Pediatrics, Annual Meeting, Oklahoma State Medical Association, Muskogee, May 4, 5, 6, 1927.

tury. No other period in the earth's history has brought about greater advancement towards the mastery of disease processes. The most tangible proof of this lies in the well known fact that the average duration of human life has been prolonged some ten years, and many of the most deadly and dreaded diseases have become almost unknown. But a little reflection will convince most of us that the public in general is falling far short of receiving the full benefits from the work that has been done. In other words, the science of medicine is a long way ahead of its application. Medical knowledge is brought to the public largely through the medium of the private physician. The daily press and certain periodicals have, in some measure, diffused useful information, but the physician is the final authority on all matters pertaining to health and disease.

In all probability, one of the most outstanding faults with the practice of medicine today is this; it deals too much with diseases and diseases alone. These are treated instead of patients. It is, in a way, a sort of cross section method. And this method pervades its entire teaching, study and practice, from beginning to end. Text books nearly all deal with nothing but diseases. Lecture courses do the same. In the clinics, students are taught diseases as more or less separate entities —efforts usually being made to group large numbers of them together for observation and study. Later, in practice, the same ideas are carried out—the everlasting study and treatment of diseases.

Now medicine, in its true perspective, is based upon a fundamental knowledge of a n a t o m y, physiology, pathology and therapeutics with the proper application of this k n o w l e d g e towards promoting normal growth and development, preventing and curing diseases and prolonging life. In other words, its only aim and purpose is to relieve suffering and promote a higher state of human efficiency. Efforts in this direction are too much limited to the simple treatment of diseases. It is obvious that in order to accomplish, in the fullest measure, the above objective, it is necessary to considerably widen the field. We are reaching a stage where people expect and are willing to pay for a much broader and more comprehensive s e r v i c e on the part of the physician. This is possibly best exemplified in the specialty of obstetrics. Not so long ago the doctor was never called until such a time as the woman was ready to deliver. It has now become an almost universal custom for the services of the physician to be sought practically as soon as pregnancy is suspected. His advice is desired throughout the period of gestation and people are willing to pay for it. And an analogous condition is spreading to other branches of medicine. People are gradually learning the value of placing themselves under the care of a competent physician and regularly seeking his advice as to their daily activities and methods of living. In other words, they are coming more and more to call upon physicians to treat and advise them as individuals rather than to simply expect to be healed of certain disease processes that may arise from time to time.

In no other branch of medicine can this idea of treating individuals rather than diseases be more effectively carried out than in pediatrics. The term, "specialist in diseases of children" will in due time, we hope, fall into discard. A pediatrician should no more be spoken of in such a way than should an obstetrician be spoken of as a "specialist in diseases of pregnancy." And no man who is merely qualified to treat "diseases of children" deserves to be spoken of as a pediatrician. We should remember that we are called upon to treat infants and children. It is true that if we are going to limit our work to patients belonging to a certain period of life we should be thoroughly familiar with the diagnosis and more or less expert in treating the ailments that are incident to that age. But the services rendered by a pediatrician must be much broader and much more inclusive than this. They must include measures for (1) promoting proper nutrition and development; (2) employing prophylactic means against diseases; (3) treating disease processes present and (4) employing every known method of preventing future damage or injury to the organism. Aside from any particular complaint or ailment for which the doctor is consulted every pediatric case always presents a variety of possibilities and potentialities. The greatest excuse for the existence of the pediatrician is the fact that he is more conversant with the potential conditions and better able to detect them by their earliest signs than is the man who does general practice.

To make the meaning of this more clear some of the commoner "potentialities"

will be mentioned. In the first place every infant is potentially rachitic. It is a pretty certain fact that well over fifty per cent of them develop this condition to some degree. This disease, although generally not serious, always interferes with proper growth and development. And still, it is largely due to the enterprising publicity of commercial houses that cod liver oil is used as widely as it is. Even this remedy in the dosage usually given, will by no means insure every baby against rickets. Constant watch should be kept for the early symptoms—sweating of the head, restlessness at night, constipation, and beading of the ribs. When these make their apearance the amount of cod liver oil should be materially increased or other anti-rachitic measures instituted. Diphtheria continues to take a toll of 10,000 lives in this country every year. Toxin-antitoxin is a safe preventive. The best time to administer it is at about the age of ten months. It is a pretty safe conjecture that the majority of people today first learn of this through some source other than the private physician. And quite a bit of uneasiness has developed in recent years on account of the neglect of vaccination against small pox and the consequent spread of the disease. Between three and six months of age is probably the best time to vaccinate against small pox. Few doctors so much as mention this to parents.

And so in the management of some of the most common and generally considered, most trivial ailments of childhood there are always possibilities of serious consequences that should be constantly kept in mind. One of the commonest childhood ailments is tonsillitis. It is so frequently seen that it is generally treated and dismissed without a second thought. And still, every case of tonsillitis in a child is a potential case of endocarditis or nephritis. Our duty has not been fully discharged to such a case until we have assured ourselves to a reasonable degree that there is no inflammation of the endocardium or kidneys.

Endocarditis deserves special attention because it appears to be playing an increasingly important role in our morbidity and mortality rates. A large percentage of these cases have a rather vague and obscure beginning in the early years of life but are not discovered until some time later. This is due to the slight significance that has been attached, by medical men, to certain potential cardiac conditions occurring in childhood—a class of ailments referred to under the general term, rheumatism. At this age rheumatism does not necessarily mean swollen, red or painful joints with fever and other constitutional symtoms. It more often consists merely of rather vague, indefinite pains in the joints and muscles. Instead of dismissing such complaints as the traditional growing pains they must be looked upon as a really serious condition that may possibly result in a permanently crippled heart.

And we are constantly acquiring more useful knowledge concerning the earlier evidences of dysfunctions of the endocrines. It should be no longer necessary for these cases to become sideshow attractions before a diagnosis is made. Especially is this true of disturbances of the thyroid and pituitary. Recent observations make it appear entirely probable that numbers of these conditions are present and recognizable during early infancy—even at the time of birth in some cases. We now possess enough knowledge to permit of a checking up on the function of these glands, with a certain degree of accuracy, during the early years of life. If endocrine dysfunctions are to be remedied, it is obvious that early treatment will be the most effective.

Now only a few specific conditions have been mentioned—just enough to try to make clear the object of this discussion. More and more are we made conscious of the fact that a great many of the most important diseases of later life are, in actuality, childhood diseases. While not being discovered until well past adolescence or even in advanced years their beginnings can often be traced to the period of childhood. Such conditions as endocarditis, nephritis and tuberculosis come in this class. In a way this is a challenge to the pediatrician. He must do more than to simply calculate a few feeding formulae and employ measures to ameliorate the courses of the ordinary childhood diseases. He must treat patients—always being alert to the possible pathological conditions that may arise, forestalling these where possible or discovering them in their incipiency and applying the remedy at a time when it will be most effective. It is quite probable that in the future the pediatrician, more than any other individual, is going to play the part of adding still more years to the average span of life as well as making those years more efficient and free from morbidity. And this

will be the work of the pediatrician—not simply the specialist in diseases of children.

## FACTORS IN ADVANCEMENT OF ORTHOPEDIC SURGERY

John Prentiss Lord, Omaha (Journal A. M. A., Aug. 27, 1927), reviews the evolution of orthopedic surgery. Naturally, he says, the advances in orthopedic surgery have been coincident with the development of general surgery, and its progress has been so rapid and spectacular that general surgeons were fully occupied by its major achievements. The status of orthopedic surgery in hospitals and in teaching institutions varies greatly. It is usually under the dominance of general surgery, and numerically the orthopedic surgeons are in the minority. There is great lack of uniformity in curriculums and great variation of custom in the distribution and assignment of cases to orthopedic departments. The newer and broader classification of orthopedic conditions includes fractures, osteomyelitis and joint diseases, all of which are prone to result in deformity and disability. One of the larger functions of orthopedic surgery is to prevent or minimize the latter conditions. Hence to accomplish these results such cases should be assigned to the orthopedic department on admission. Many orthopedic surgeons have reason to complain that too often their departments are but the dumping ground, the junk heap, for maltreated cases from general surgeons and general practitioners. An outstanding factor in the advancement of orthopedic surgery is that, in recent years, great interest in the cripple has been shown. Therefore, the cripple is the recipient of very special attention which has brought the cripple or the potential cripple to some of the organized agencies for his care. The particularly strong appeal of the crippled child has loosened the small as well as the large purse strings. All these and similar evidences of serious interest in the crippled child serve to advance orthopedic surgery. The organized agencies for the care of the crippled are so numerous and so active that very large numbers of cases have become available for clinical and teaching purposes. This command of material has done much to increase the experience and enhance the skill of orthopedic surgeons. At no previous times has so much attention been given to the welfare of children. State hospitals for crippled children early demonstrated the necessity for wholesale provision for the care of our large numbers of crippled and physically handicapped children, now estimated to number nearly one-half million. Not all states have made this provision, and even those who have have not fully met the requirements. In some instances large bequests have supplemented state or community development of institutions for the relief, care, education and vocational training of crippled children. All this private and public interest in the cause of the cripple has been tremendously augmented by the assumption of the care of indigent crippled children and their temporary adoption by many organizations. Clinics for crippled children at state and county fairs and in connection with county and district medical societies, with the cooperation of the visiting nurses, increase the interest of all in the care and treatment of orthopedic cases and enhance the practice of those in the orthopedic specialty. One of the reasons for a wider and more general improvement of orthopedic principles and practice is the fact that surgeons are becoming better orthopedists and orthopedists are becoming better surgeons. It is therefore, gratifying to note that much of our present-day progress comes from both our highly trained specialists in orthopedic surgery and our orthopedically minded general surgeons.

## BREAST FEEDING PROBLEMS

In the Portland Infant Welfare Clinics, breast feeding is especially emphasized. During the first three years of the clinics, among the 685 babies registered under 2 years of age, the mortality was 0.8 per cent, while the coincident city death rate for the same age group was 6.5 per cent. That the breast feeding period is too short in the majority of cases, as asserted by C. Ulysses Moore and Helen G. Dennis, Portland, Ore. (Journal A. M. A., Sept. 17, 1927), is demonstrated by the fact that in many communities not more than 15 per cent of infants are breast fed for nine months or more. The presence in breast milk of antibodies for human diseases merits more consideration. Increased emphasis on breast feeding reduces morbidity and mortality. The commonest breast feeding problems of the infantile period are hypergalactia and hypogalactia. Illustrative cases are given to indicate solutions. Establishing or reestablishing a flow of breast milk is often complicated by the infant's refusal of the breast. A breast feeding device called the breast feeder has been developed which enables a baby to obtain complemental food while nursing at its mother's breast. Parenteral and enternal diseases are more permanently cured by keeping a baby on the breast than by weaning it. A good rule to follow is that any mother who is well enough to care for her child is capable of nursing it.

## INHALATION TREATMENT

One of the simplest and most rational of the many applications available for the treatment of rhinitis, laryngitis, and other affections of the nose and throat resulting in congestion or swelling of the mucous membrane, is Adrenalin Inhalant, Parke, Davis, & Co. This preparation contains in a vegetable oil base Adrenalin in the same percentage as that contained in the standard aqueous solution—1 to 1000. The effects of Adrenalin Inhalant are prompt, but prolonged, for the reason that the Adrenalin is released slowly from the oil. Thus the patient gets a gradual and continued astringent action from the application of the Inhalant.

While Adrenalin Inhalant is usually employed full strength, some practitioners prefer to dilute it with three or four parts of olive oil or cottonseed oil; it does not mix well with mineral oils.

The use of Adrenalin Inhalant is advised in connection with some bland yet efficient antiseptic—one of the silver preparations, for example.

The best instrument we have ever seen for applying Adrenalin Inhalant is what is known as the Glaseptic Nebulizer, made by Parke, Davis & Co.

# THE JOURNAL

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Local news of possible interest to the medical profession, notes on removals, changes in address, births, deaths and weddings will be gratefully received.

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## EDITORIAL

### THE RURAL PRACTITIONER

The growing scarcity of physicians in rural communities and a relative increase in urban centers has been noted as a matter of grave concern for several years. Various medical organizations have attempted to investigate the underlying causes and to adopt possible remedial measures. As conditions, as a rule, are very similar throughout the country, it is worth while for Oklahomans to begin to ponder the matter.

It is well known that there has been a similar trend in Oklahoma, especially in the last fifteen years. The reasons for this are similar to those believed to exist elsewhere. These are:

A decrease in the number of medical schools, with a consequent decrease in students. In 1904 there were 28,000 students in 166 medical schools of the country, and 5,700 men were graduated. In 1919 there were a few less than 13,000, in 1922 only 2,529 men were graduated, the number of schools having fallen to 81. In 1926 there were only 79 schools, 61 of these being grade A colleges. In spite of this, students had increased to 18,840; graduates that year numbered 3,962.

Rapid transportation, made possible by better roads and the automobile, have undoubtedly been a great factor in the shifting of medical populations from small, unattractive towns to the larger centers. Small Oklahoma towns formerly having from one to three physicians, today have none, but except for urgent emergencies the needs of the community are fairly well met by the use of telephones and ease of access to the physician. It is pointed out in many localities only the older physicians will remain in the smaller communities, that they are rapidly disappearing, and their places are not being filled by younger men, who can see no great future or promise of much material success in such locations.

The cost and length of time of medical education has uniformly increased during the last decade and a half, and the younger man can hardly be criticised for refusing to locate in places inaccessible to the urgently needed laboratories, hospitals and consultation facilities which their training has convinced them are necessary, if they are to successfully apply the technic and knowledge they have gained at much cost of time and money. It has been suggested that medical education be somewhat curtailed to meet the conditions, that considerable of the research and technical phases now demanded of the student might be eliminated, and at the same time prepare him for most of the problems of a general practice. This has not met favor with educators or students, and probably will not. It is inconceivable that ambitious young men will accept any less than the best obtainable.

A few localities have tried, and report success, in the plan to guarantee a minimum fixed sum, but that is in the experimental stage. Apparently it must be con-

sidered sooner or later by communities finding themselves without proper medical service. The entire matter is surrounded by many complex problems; it is affected by many things, at first thought not connected with it. One authority is of the opinion that over-standardization and over-working so-called "efficiency" demands, is more than any other thing responsible. However, it is difficult to lay the blame upon any one condition, probably solution will be best met when it is understood that very diverse factors, educational, economic and sociologic, all have something to do with the growing scarcity of physicians in rural communities.

## *Editorial Notes—Personal and General*

DR. C. R. SILVERTHORNE, Woodward, spent two weeks of hunting in Old Mexico.

DR. B. H. BURNETT and family, Duncan, spent the Christmas Holidays in Texas.

DRS. J. E. and O. C. STANDIFER, Elk City, opened their new Hospital in December.

DR. L. S. MUNSELL, Beaver, was reported seriously ill in December from influenza.

DR. L. V. BAKER, Elk City, visited Kansas City for post-graduate work in December.

DR. T. B. COULTEER and MISS ELEANOR HOWARD, Tulsa, were married December 23, 1927.

DR. and MRS. C. T. CARAKER, Duncan, spent the Christmas holidays with relatives in Georgia.

DR. S. C. SUMMERS and MISS MINNIE MAY SWEETS, Tulsa, were married December 25 in that city.

DRS. M. B. GLISMANN, J. C. Rembert and A. B. Turk, Okmulgee, are preparing to open a clinic in that city.

DRS. RALPH V. SMITH and S. J. BRADFIELD, Tulsa, moved their office to 607 Medical Arts Bldg., Tulsa.

KAY County Medical Society heard a paper by C. W. Arrendell, Ponca City, on the subject of "Infant Feeding."

DR. S. R. CUNNINGHAM, Oklahoma City, and his two sons have returned from a mid-winter visit to Cuba.

LEFLORE County Medical Society elected Dr. E. N. Fair, Heavener, President and Dr. J. B. Wear, Poteau, Secretary-Treasurer.

ALFALFA County elected the following officers: Dr. G. G. Harris, Helena, President; Dr. L. T. Lancaster, Cherokee, Secretary-Treasurer.

DR. and MRS. W. P. FITE, Muskogee, entertained physicians and their wives of the U. S. Hospital staff with a quail dinner in December.

DR. and MRS. W. E. Rammel, Bartlesville, who have been residing in California for the past year have returned to their home in Bartlesville.

ANDERSON-CARSON-HUGHES Hospital was opened in December to the public under the management of Drs. R. M. Anderson, F. L. Carson, and J. E. Hughes.

OSAGE County is to have a full time health unit sponsored by the State, the County and by the Federal Government. Dr. A. R. Chism of Alabama has been selected as director.

DR. WALTER S. STEVENS, medical director of the Department of Indian affairs at Washington, D. C., is making investigation of health conditions among the Ponca and Otoe Indians.

PONTOTOC County Medical Society elected Drs. M. M. Webster, Ada, President; Alford R. Sugg, Ada, Vice-President; C. F. Needham, Ada, Secretary-Treasurer; and W. D. Faust and Cathrine Brydia, Delegates.

CRAIG County Medical Society elected Drs. C. F. Walker, Grove, president; W. M. Campbell, Vinita, Vice President; W. R. Marks, Vinita, Secretary-Treasurer; D. B. Stough, Vinita, Censor; F. M. Adams, Vinita, Delegate.

OKMULGEE County elected the following officers: Dr. G. Y McKinney, Henryetta, President; Dr. V. W. Wallace, Morris, Vice-President; Dr. J. O. Lowe, Okmulgee, Censor; Dr. M. B. Glismann, Henryetta, Secretary-Treasurer.

BRYAN County Medical Society elected the following officers: Dr. R. A. Lively, President; Dr. R E. Sawyer, Vice-President; Dr. James D. Shuler, Secretary-Treasurer; Dr. D. Armstrong and Dr. John A. Haynie, delegates; all of Durant.

OKMULGEE-OKFUSKEE County Medical Societies are hereafter held jointly, meetings alternating between Henryetta, Okemah and Okmulgee. Each County will retain its identity and separate organization but will meet together to stimulate more scientific interest.

JACKSON County Medical Society met at Altus. December 30. They heard a paper on "Confinement Work" by E. S. Crowe, Olustee; and "Immunization against Diphtheria and Scarlet Fever" by R. H. Taylor, Blair. Dr. Raymond H. Fox discussed the "Present System of Collecting."

PAYNE County Medical Society selected for the new year the following officers: Dr. L. A. Cleverdon, Stillwater, President; Dr. J. A. Martin, Cushing, Vice-President; Dr. L. A. Mitchell, Stillwater, Secretary-Treasurer; Censors, Drs. D. J. Herrington, Cushing; J. H. Cash, Stillwater, and J. B. Hudson, Yale.

OKMULGEE County Society met at Henryetta, January 9th. Dr. C. P. Bondurant, Oklahoma City held a skin and cancer clinic at Okmulgee in the afternoon, twenty-two cases being presented. The meeting was held in conjunction with members of the Okfuskee County Society. Thirty physicians were present.

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OKLAHOMA County Medical Society elected officers at their annual meeting: Dr. A. B. Chase, Oklahoma City, President; S. N. Stone, Edmond, Vice-President; Dr. R. L. Murdoch, Oklahoma City, re-elected Secretary-Treasurer; Dr. C. M. Pounders, Oklahoma City, Library board; and Drs. R. M. Howard, E. S. Ferguson, and A. D. Young, board of censors.

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TULSA County Medical Society were guests of the Oklahoma Hospital January 9th at 8:00 P. M., when Dr. W. J. Trainor was installed as President; Dr. Ralph McGill as Secretary-Treasurer, for the year. A very interesting progarm was presented jointly at the time by members of the Staff of the University Hospital of Oklahoma City and Oklahoma Hospital of Tulsa. The papers read will be published in later issues of the Journal. The following program was presented:

"Treatment of Colitis," Dr. DeLeon A. Williams, Kansas City, Mo.

"The Present Status of the Liver Function Test," Dr. Wann Langston of University Hospital Staff.

"Two Clinical Cases: one of Tetanus and one of Gas Bacillus," Dr. John F. Park, Oklahoma Hospital Staff.

"Deformities of the Lower Extremities: Lantern Slides," Dr. W. K. West, University Hospital Staff.

"Clinical Report of Sympathetic Ophthalmia," Dr. Walter A. Huber, Oklahoma Hospital Staff.

DR. C. T. HENDERSHOT, Tulsa, President-elect, was presented at the meeting.

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## JAMES CHARLES WILLARD BLAND

### In Memoriam

The first graduate of a recognized medical college to locate in Tulsa was J. C. W. Bland, M. D. He was born in Centerville, Iowa, in 1859. Died in Oklahoma Hospital, Tulsa, January 2, 1928. For forty-three years he labored in this field. As a real pioneer he paved the way for progressive medicine. He was the first to do an amputation or a major surgical operation in this community, having borrowed the instruments from the late Dr. B. F. Fortner, Vinita, Okla. He was the first to use diphtheria antitoxin in Tulsa shortly after its introduction into the United States.

He read much, thought clearly and reasoned well while studying a case or caring for a patient. His knowledge was not confined to medicine; it extended to history, literature, politics, farming, stock raising, etc. When he cast his lot in Indian Territory he had to be a man among men to command proper respect. He aided in making life safe and property secure.

No one was too poor to enjoy his services as readily as the well-to-do rich. He was loyal to his friends, honorable to his enemies and honest and upright in all of his dealings.

Dr. Bland was an ardent supporter of organized medicine and contributed much to the Indian Territory Medical Association. He was a member of the first Board of Medical Examiners for the Creek Nation during the life of the Board. Charter, and later honorary life member of Masonic Lodge No. 170, Sapulpa. He served over twenty-five years as a member of the U. S. Board of Pension Examiners at Tulsa. He was local surgeon for many years for the Frisco and Midland Valley Railroads.

His abiding faith in the principles of rational medicine and their application toward the relief or cure in illness or injury was an inspiration to young or old practitioners of medicine. Out of an abundant clinical experience his intelligent observation and marvelous memory often recalled interesting and instructive cases abounding in evidence of initiative and courage in meeting emergencies under the handicaps of pioneering in a new country without present day resources of counsel, hospital, laboratories, improved methods of travel, and communication, books, journals, etc. Dr. Bland was guide, counsellor and friend to all classes, colors and creeds in need of a physician. At his bier bowed alike, millionaire, banker, businessman, pauper, Indian, white, negro, physician, surgeon, lawyer, minister, judge, citizen, non-citizen, ex-outlaw, Protestant, Catholic, lame, halt, blind; in fact, all sorts and conditions of people sought to pay homage to his honorable memory.

In view of his high ideals of medical service and lofty sentiments of loyalty to patients, fidelity to friends and honorable conduct on all occasions, it is proper that we should spread upon our minutes an expression of admiration and friendship.

THEREFORE, Be it resolved that the Staff of the Oklahoma Hospital in regular meeting January, 1928, express their great appreciation of the work, worth and fellowship in seeding the ground in this part of the state for rational medicine by Dr. J. C. W. Bland, an honorary member of our staff.

The family has lost a valuable and reliable advisor and the poor, a friend in deed and in truth. The Staff of the Oklahoma Hospital, in expressing their grief at his loss, extend their sympathy to his family in their great sorrow.

BE IT FURTHER RESOLVED that a copy of these resolutions be spread upon the minutes, a copy furnished the Medical Press and transmitted to the family.

JOHN F. PARK
J. C. SMITH
WALTER A. HUBER
FRED S. CLINTON
Committee.

## *EYE, EAR, NOSE and THROAT*

Edited by Jas. C. Braswell, M. D.
726 Mayo Bldg., Tulsa

**Localization of Foreign Bodies In or About the Eye., Mills, H. P., and Watkins, W. W.: Radiology, 1927, VIII, 336.**

Since the perfection of localization technique, ophthalmologists have been placed in a position of decided advantage in the treatment of foreign-body injuries of the eye. The ability to determine definitely the location of a foreign body, its size, its shape and, within limits, its nature, permits the proper treatment of such injuries early and has conserved the vision of many eyes which would otherwise have been lost.

Brief mention is made of the history and development of localization technique and some of the literature relating to it is summarized. Emphasis is laid upon the necessity for scrupulous exactness in the technique and mention is made of certain unavoidable sources of error. Localization by the Sweet apparatus has been found remarkably accurate.

In 500 consecutive cases examined by the author for suspected foreign bodies, roentgenography was found to be especially valuable in the following conditions:

1. Demonstrable intra-ocular damage with no foreign body found in or about the eye.
2. Old injuries without a recognizable wound of entry.
3. Extensive intra-ocular disturbances in which the ophthalmoscopic examination is of very little value.
4. Cases of non-magnetic foreign bodies, such as copper or rock, in which it is very essential to know whether there are intra-ocular particles, as the indications for enucleation or conservative treatment may depend on this information.
5. Cases of multiple foreign bodies blown into or about the eye. The treatment usually depends upon whether intra-ocular particles are present in one or both eyes.
6. Injuries in which the determination of the exact size, location, and shape of the foreign bodies furnishes the necessary indication for the route of extraction of magnetic foreign bodies or suggests the possibility of extraction on non-magnetic bodies by forceps.
7. Cases in which the foreign bodies change position, either unassisted or after the application of a magnet.
8. Cases in which there is doubt as to the nature of the foreign body which has entered the eye.
9. Cases with multiple foreign bodies of a magnetic nature.
10. Cases of extraordinarily large foreign bodies in which information relative to the size and shape may indicate the best route for extraction.

One or two illustrative cases of each group are cited and 146 of the 500 cases examined for foreign bodies are tabulated. A review of their work has led the authors to conclude that exact localization of foreign bodies is not only desirable, but so necessary to the intelligent management of most injuries of this type that the procedure cannot safely be omitted in any foreign-body injury to the eye.

**Malignant Tumors of the Nasal Sinuses: A Further Report on the Results of the Wide Open Operation Followed by Immediate Radiation., Barnes, H. A., Arch. Otolaryngol., 1927, VI. 123.**

The author reports his results in the treatment of malignant sinus tumors by a combination of operation and immediate radiation. This procedure is based on Moure's lateral rhinotomy with the addition of cutting away of the soft tissues of the cheek to leave a wide, permanent opening and immediate radiation to devitalize any particle of tumor that may remain.

The radiation treatment is given with 100 to 200 mgm. tubes screened with 0.2 mm. of platinum and 0.5 mm. of brass or with 2 mm. of lead. These are left in place for from 24 to 48 hours. All suspected sinuses are opened wide and thoroughly cleaned out. In every case of orbital involvement in which a clean removal of all gross tumor is possible, the eyes are left. Repair of the facial opening may be accomplished with comparative safety after a year of absolute freedom from suspicious recurrences.

Tumors of the nasal sinuses include all varieties of carcinoma and sarcoma. The epidermoid carcinomata are the most malignant. The basal-cell carcinomata are only mildly malignant and respond best to radiation. Only those cases are considered inoperable in which the presence of metastases is demonstrated.

The operative mortality is about 16 per cent. A cure is obtained in about 52 per cent of the cases.

**Nasopharyngeal Atresia., MacKenty, J. E., Arch. Otolaryngol., 1927, VI. 1.**

MacKenty first reviews the experience of others in the treatment of nasopharyngeal atresia.

The chief symptom of the condition is, of course, partial or complete obstruction of nasal breathing. Complete obstruction is rare. Nasopharyngeal atresia may be congenital or acquired. True congenital atresia is due to embryonic maldevelopment and not to inflammation. The acquired condition is caused by syphilis, trauma, diphtheria, tuberculosis, and simple inflammation. The diagnosis is usually easy. Congenital atresia is successfully treated by division and divulsion of the obstructing diaphragm. In acquired syphilitic cases the prognosis is poor. in case of extensive atresia, those in which the whole pharynx is contracted to the center, the prognosis is almost hopeless. Non-operative treatment consists of gradual dilatation. Incision with subsequent dilatation to maintain the opening has given poor results.

The author outlines two methods that have been successful in his cases. In the first, adequate flaps from the posterior pharyngeal wall are doubled backward and upward upon themselves so that their own raw surfaces are brought against the raw surface of the soft palate. All sutures are tied over lead disks and through small lead tubes. In the second procedure the attempt is made to produce a cleft in the soft palate as far up toward the hard palate as seems necessary for a permanent opening. The latter method is used when an adequate flap from the posterior pharyngeal wall cannot be obtained. These operations are followed by dilatation to the necessary degree. The methods are shown by illustrations.

**Chronic Otitis Media in the Tuberculous: Local Ultraviolet Light Treatment., Lussmann, F. J., and Bendove, R. A., Arch. Otolaryngol., 1927, VI. 153.**

In routine examinations the authors found chronic otitis media in about 15 per cent of all tuberculous patients. In about 80 per cent of these it was unilateral. Acid-fast bacilli were found in only three cases in which the sputum revealed many tubercle bacilli over a long period of time and were generally discoverd during an acute exacerbation of the pulmonary disease.

Tuberculous otitis media has an insidious and usually painless onset. It is associated with a profuse, intermittent, creamy, and at times, foetid and bloody discharge and causes rapid impairment of hearing.

The rational treatment is stimulation of a healthy local tissue growth. This is best accomplished by mild and slow radiation with ultraviolet light from either the solar rays or the quartz light. Excessive radiation may do more harm than good. The dosage should begin at one minute a day and increase up to about 30 minutes in from one to five months.

## *TUBERCULOSIS*

Edited by L. J. Moorman, M.D.
912 Medical Arts Bldg., Oklahoma City

**Notes on Certain Bronchomycosis Which May Simulate Pulmonary Tuberculosis., Aldo Castellani. The American Review of Tuberculosis. November, 1927.**

There are certain symptoms common to all bronchomycosis whenever fungus is the etiological factor. In mild cases there are types of mild bronchitis with mucopurulent expectoration in which the fungi are found. In severe cases the patient presents symptoms suggesting tuberculosis with hectic fever and hemorrhagic expectoration. Most bronchomycosis are benefitted by the administration of potassium iodide. The prognosis varies a great deal according to the causative fungus—the cases due to nocardia (filamentous fungi) have the most favorable prognosis.

**The Clinical Manifestations of Pneumonomycosis. Louis Hamman. The American Review of Tuberculosis. November, 1927.**

Fungus disease of the lungs may stimulate any of the sub-acute or chronic pulmonary affections; but it is more commonly mistaken for tuberculosis than for any other condition and this gives it a special interest for physicians occupied principally with the diagnosis and treatment of pulmonary tuberculosis. While secondary invasion of the lungs by fungi is not uncommon and lung nodules are frequently found in generalized fungus infections, nevertheless, mycosis of the lungs as a primary and independent affection is a rare disease, especialy in this country.

Among the moulds, pencillium, aspergillus and mucor are the three varieties of clinical interest. Pencillium is probably always a saprophyte and takes no part in altering the course of the pulmonary disease with which it is associated. Aspergillus and mucor often invade the lung tissue and by their growth produce extensive anatomical lesions and no doubt add important clinical symptoms to those caused by the primary disease. Such invasion has been found chiefly with tuberculosis. Clinically, aspergillus is indistinguishable from tuberculosis. It begins with cough, hemoptysis, and fever. The disease is very cnronic; it may last for many years and end in a condition of extreme fibrosis.

Mucor is nearly always a secondary invader and is usually associated with tuberculosis.

Sporothricosis is not an unusual infection in the United States. The disease usually begins as a local lesion following an abrasion or cut. From this lesion it spreads locally and may later metastasize to the internal organs. The pulmonary lesions are similar to those in the skin, and produce the clinical picture of broncho-pneumonia.

Infection with blastomyces is rather common in this country and usually begins with symptoms of a severe cold, namely, cough, expectoration (sometimes bloody), fever and other constitutional symptoms. Dullness, altered breath sounds and rales are often present; and since the lesions are often in the upper lobes, similarity to tuberculosis is complete. Pleural involvement is also frequent. The diagnosis can be made only by finding the microorganisms in the sputum or when subcutaneous nodules and abscesses appear.

Infection with Coccidioides immitis produces pathological lesions resembling tuberculosis still more closely and equally deceptive clinically. About 50 cases have been reported, nearly all of them occurring in California. The disease is more malignant than blastomycosis and usually its local lesions are promptly followed by systemic invasion. In many instances it begins as a pulmonary infection and the picture is typical of pulmonary tuberculosis. Pleural effusion is common. There is cough, bloody sputum, fever, loss of weight and weakness. The streptothrix is the most common and most important of fungus invaders of the lungs—not only do the lesions they produce resemble tuberculous lesions, but the microorganisms themselves are closely related, biologically, to the tubercle bacillus. For streptothrix to gain a foothold in tissue trauma is necessary, and infection usually occurs in association with the introduction of a foreign body. The skin, mucous membranes, bones and lungs are the usual sites of disease. The streptothrix is present, not infrequently, as a saphrophyte in the mouth and far-reaching conclusions must not be drawn from only the presence of microorganisms in the sputum.

Actinomycosis is the best known of the pulmonary mycoses. Primary disease of the lung is not uncommon. The chief distinguishing features of the condition are massive fibrosis and extensive pleural involvement leading generally to perforation of the chest wall.

**Fuso-Spirochaetal Disease of the Lungs. David T. Smith. American Review of Tuberculosis, November, 1927.**

Clinical, bacteriological, pathological and experimental studies indicate that pulmonary gangrene, most cases of pulmonary abscess, certain types of unresolved pneumonia and bloody bronchitis, putrid bronchitis and primary bronchiectasis, are not separate disease entities but only different manifestations of infection with a specific group of anacrobic microorganisms.

Spirochaetae, fusiform bacilli, vibrios, and cocci have been found constantly present: (1) In the gums of patients suffering with these infections; (2) in the washed pulmonary sputum; and (3) in pulmonary tissue at necroppy. When material scrapped from the alveolar border of the teeth in cases of moderately severe pyorrhea was introduced into the trachea of anesthetized mice, guinea pigs and rabbits, a variety of pulmonary infections resulted which resembled very closely the acute and chronic manifestations of fusospirochaetal disease in man.

Treponema microdentism, treponema macrodentium and two types of fusiform bacilli have been isolated in pure culture from the washed pulmonary sputum.

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**Campbell, W. C.: The Stabilization of Paralytic Feet. Am. J. Surg., 1927, III, 62.**

The operation which is the subject of this article has become generally known among orthopedic surgeons as Campbell's bone block. It is done to prevent foot-drop from infantile paralysis and other causes. The technique is as follows:

The posterior aspect of the astragalus, the ankle joint and the superior surface of the os calcis are exposed through an incision parallel with the tendon of Achilles. If the tendon is contracted, a tenotomy is done. The posterior wall of the astragalus is chiseled off and a cavity chiseled out of the top of the os calcis. A bone graft from any part of the skeleton, preferably of spongy bone, is then sunk in the cavity and allowed to project upward behind the ankle joint. Chips of bone from the os calcis are piled on top of the graft, the mass being built up behind the articular surface of the tibia. The soft tissues are then sewed snugly over the bone fragments and the foot is put up in a plaster cast at 90 degrees.

This operation differs from all for the same purpose in that no suspension of the foot by tendons or silk ligaments is attempted.

In the past five years Campbell has performed it in 213 cases. When necessary, the calcaneoastragalar joint was fused to correct lateral deformity of the foot. In some cases it is necessary to fuse also the calcaneocuboid joint. After such fusion operations, the denuded bones should be approximated snugly together to prevent the formation of dead spaces. After three weeks it is wise to remove the cast and to determine by roentgenogram whether the bones are in close apposition. If they are not, they can still be forced together under anaesthesia and a new cast applied.

The indications for the operation are: simple foot-drop; partial foot-drop, in which the midtarsal joint is usually stable; rigid equinus; equinovarus; equinovalgus; flail-foot, in which it is indicated as an adjunct to stabilization of the mid-tarsal joints; tendon transplantation, especially of the extensor longus digitorum to the tarsal region; and spastic contracture of the tendon of Achilles. It is seldom indicated before the eighth year of age.

Of 104 children treated by this method, 76 were re-examined. Of the latter, 71 showed the bone block effectively preventing plantar flexion.

Failure of the operation may be due to too early discarding of the cast, trauma to the tibia causing union of the graft with that bone and resulting in stiffness of the ankle, and tetanus infection in children who have gone barefooted.

Of 109 adults subjected to the procedure, 86 were re-examined. A successful result was found in 83.

The result of the operation is considered definite in six months. In some cases in which the roentgenogram showed sufficient bone growth the block was not effective because of incomplete union or union with wrong contract.

As is true of all other operations for paralytic feet, the chances of success increase with the patient's age.

The advantages of the author's operation are that it is simple, all braces may be discarded, muscle power is conserved, the prevention of overstretching may induce the return of power in the anterior muscles, and the rocker motion of the ankle joint is conserved.

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**Fractures and Dislocations., Hansson, K. G., and Birrell, R. G.: The After-Treatment of Fractures About the Elbow. Am. J. Surg., 1927, III, 13.**

Of 828 fractures treated at the Hospital for Ruptured and Crippled, New York, 100 involved the elbow. Fourteen of these required open reduction. In five, there was nerve involvement; in two, myositis ossificans; and in one case, a complicating arthritis.

The method of acute flexion for fresh fractures about the elbow is now so well known that few doctors hesitate to treat such fractures. The after-treatment, however, is little understood.

Of the patients whose cases are reviewed, about 50 per cent did not come for after-treatment until a month after the fracture. Such delay renders prolonged treatment necessary. In the cases of patients coming for treatment during the first three weeks, the average number of treatments required was 12.5, whereas, in those patients coming after a month, the average number was 23. The final functional result is better the earlier the after-treatment is begun.

The after-treatment should begin as soon as swelling, pain, and muscle spasm have disappeared, usually at about the end of the second week. It should consist in the use of external and internal heat, massage, and exercise.

In the author's cases heat is first applied in the form of a hot whirlpool bath. After a week of this treatment, dry heat is applied by means of a carbon filament lamp with a reflector.

Diathermy also is used, either with an electrode on each side of the elbow or with one above and one below the elbow.

Massage is important. It stimulates the circulation, aids the flow of lymph, and releases adherent tissues. A proper touch is preferable to great strength. The patient should be in the recumbent position during all massage treatments. If the massage causes a protective muscle contraction, it is too vigorous.

Active therapeutic exercises are begun after the first week. Passive exercises, especially when forceful, are unphysiological and have no place in the treatment of elbow fractures. After active motion has been well started, it is done against resistance. Finally, the patient does exercises on apparatus, using his body weight as resistance.

From a practical standpoint, treatments can usually be given once a day or every other day; that is, about one hour of exercises and treatment in 24 or 48 hours. However, as soon as im-

mobilization is dispensed with, the patient can carry out the exercises every three hours at his home.

Massage around the callus is contra-indicated because it may produce excessive callus or even myositis ossificans.

Even when the best methods are used, the results are poor in about 10 per cent of elbow fractures.

## *BOOK REVIEWS*

**RADIUM IN GYNECOLOGY**, by John G. Clark, M.D., and Charles C. Morris, M.D., with a chapter on Physics by Gioacchino Failla, E. E. M. A., D. Sc. Illustrated—$8.00. Lippincott Co.

The authors of this book are recognized authorities on the subject of the use of radium in gynecology. This monograph differentiates those cases which are suitable for irradiation. The diagnosis, symptomatology, method of treatment, mortality, morbidity, and end results as well as an extensive view of the literature pertaining to the various gynecological conditions for which radium is employed is comprised in this volume. The authors have adopted a conservative attitude regarding the use of radium and evidently feel that radium is an adjunct and not a competitor to surgery. In certain conditions irradiation is clearly the treatment of choice, as in certain cases of benign uterine hemorrhage; in others such as carcinoma of the fundus, surgery gives better end results. The general impression of the monograph is that of a carefully prepared, unbiased analysis of the use of radium in gynecology. This book is, we believe, the only monograph on the subject in English and is probably the most important one yet published on this subject. The chapter on the physics of radium has been written by Failla of the Memorial Hospital, New York, who has apparently especially prepared it for the average surgeon and physician. This chapter is a masterly portrayal of the physics of this remarkable element. The book is freely illustrated and the publishers are to be congratulated upon the fine appearance of the volume. This book should be of interest to every gynecologist, surgeon, X-ray man, as well as to the general practitioner who wishes to keep up with modern methods and to secure the best form of treatment for his patients.

**DISEASES OF THE STOMACH**; Diagnosis and Treatment of Diseases of the Stomach, with an introduction to Practical Gastro-Enterology. By Martin E. Rehfuss, M.D., Assistant Professor of Medicine at Jefferson Medical College. Octavo volume of 1236 pages with 519 illustrations, some in colors. Philadelphia and London: W. B. Saunders Company, 1927. Cloth, $12.00.

This volume contains sixty chapters covering practically every phase in diagnosis and treatment of the diseases of the stomach, anatomy, physiology, gastric secretion, analysis, X-ray examination occupy much space while the treatment of various disorders is thoroughly considered. Naturally a great deal of space is devoted to ulcer of the stomach. Duodenal ulcer and malignant ulcer are well covered, while sixty-two chapters are devoted entirely to cancer of the stomach. The surgery of the stomach is presented by one of the masters of surgery, John B. Deaver, in a forty-five page illustrated section.

**DISEASES OF THE MOUTH**, by Sterling V. Mead, D.D.S., Professor of Oral Surgery and Diseases of the Mouth, Georgetown Dental School; Oral Surgeon to Georgetown Hospital; Dental Surgeon to Providence Hospital; Consulting Oral Surgeon to Casualty Hospital; Dental and Oral Surgeon to Shady Rest Sanatorium, etc. Washington, D. C. With 274 original illustrations in the text and 29 full page color plates. 578 pages, $10.00. C. V. Mosby Company, St. Louis. 1927.

The author had clearly in view in preparation of this book the growing need for more intimate cooperation by the dentists and physicians in the handling of the intricate problems of oral sepsis and affections of the mouth and many other serious conditions which arise as a result of oral infection. While a great deal is devoted to prophylaxis, medicine and chemistry, naturally much of it falls under the head of surgery. The cuts and illustrations are all original and are unusually attractive. The subjects of fractures and injuries, tumors and cysts will appeal to every surgeon.

**AFFECTIONS OF THE STOMACH**, by Burrill B. Crohn, M.D., Associate Attending Physician to the Mt. Sinai Hospital, New York City. Octavo of 902 pages with 361 illustrations, some in colors. Philadelphia and London: W. B. Saunders Company, 1927. Cloth, $10.00 net.

This volume is an unusually good presentation of the problems surrounding Affections of the Stomach. There are fifty-two chapters which include consideration of the anatomy, physiology, mechanism, test meals, radiography, functional and organic disorders. Gastro-duodenal ulcer is given a great deal of space. Medical treatment is thoroughly entered into, while the surgical treatment is considered in two chapters by A. A. Berg.

**NERVE TRACTS OF THE BRAIN AND CORD —ANATOMY—PHYSIOLOGY—APPLIED NEUROLOGY**, by William Keiler, F.R.C.S., Ed. Professor of Anatomy and Applied Anatomy, University of Texas. Illustrated. Cloth. MacMillan Co., 1927. New York.

The author states this book on the Nerve tract and Cord is a result of 20 years experience in teaching anatomy of the Brain and Cord as to enable students to think in terms of anatomy, physiology and pathology, as applied to the nervous system. The volume should be interesting to those dealing with neurological subjects.

## MANIFESTATION OF UREMIA IN PHARYNX, LARYNX, TRACHEA AND BRONCHI

Eleven cases showing a peculiar doughlike coating on the mucous membrane of the hypopharynx, larynx, trachea or bronchi have been observed by M. C. Myerson, New York (Journal A. M. A., Aug. 27, 1927). This phenomenon appears during the stage of the onset of uremia in those cases in which it makes its appearance. It may occur in the oral cavity, pharynx, larynx, trachea or bronchi. It may occur in only one or all of these structures. The esophagus is also probably involved in some instances, but was not investigated. When seen early, this coating is diagnostic of an impending uremia. The presence of this coating in the trachea and bronchi may lead to physical signs which are mistaken for those of bronchopneumonia.

## METAMORPHOSIS OF TUBERCULOUS LUNG CHANGES AS OBSERVED IN SERIAL ROENTGENOGRAMS

Frank S. Bissell, Minneapolis (Journal A. M. A., Sept. 17, 1927), expresses the belief that the accepted management of active pulmonary tuberculosis requires an indeterminate sojourn in a sanatorium. Apparently serious attempts are not made to select sanatorium cases except on the basis of their state of advancement. Yet many cases never advance beyond the minimal stage, even when untreated. While it is not always possible to select these cases at the first examination serious risk is not encountered by keeping them under observation, with periodic roentgen-ray examinations, until they can be properly classified. The more general adoption of this procedure would avoid an unnecessary economic loss to the individual as well as to the community. The periodic roentgen-ray examination of the tuberculous lung may be made to serve an important function in the differentiation of pathologic changes indicating a tendency toward arrest or progression. More accurate prognosis may be attained through the agency of roentgenologic studies directed toward the recognition of such changes as fibrosis, calcification, cavitation, caseation and the tendency toward the isolation or dissemination of lesions. Tuberculous lesions, in themselves, do not present macroscopic or radiologic characteristics by which they can invariably be differentiated from lesions caused by certain other infections. Often, however, the distribution of the lesions within the lung field is distinctive. The periodic roentgen-ray examination, through which it is possible to observe the metamorphosis of questionable lesions, serves not only to differentiate them as to etiology, but also to determine or to measure the effects produced on the surrounding lung or the resistance of the host to the infectious agent. Lesions which remain essentially unchanged for months or years should not be permitted, by too much coddling, to convert a comparatively healthy host into a chronically neurasthenic individual. A true tuberculous cavity is always dangerous, but it is much less to be feared if it has a thick wall and is surrounded by fibrotic lung tissue. Lesions which appear and disappear in various parts of either lung field point to low virulence or high resistance and if they do not increase in number or area should be accepted as relatively benign. Many patients with tuberculous lesions in the lungs showing slight signs and symptoms of activity may properly be kept under home and vocational management if they are carefully controlled by periodic roentgen-ray examinations.

## SMALLPOX AND CHICKENPOX

The difficulty of differential diagnosis of smallpox and chickenpox has increased in recent years, because widespread vaccination of the population has reduced the opportunity to see cases of smallpox. Suggestions to aid in such differential diagnosis, and recorded in The Journal recently, are those of Hulshoff Pol, Jakson-Wartenhorst, Sahli and Painton. J. W. Tomb, chief sanitary officer of the Asanol Mines board of health, Bengal, India, has noted that the time interval between the date of onset of fever and the date of outbreak of eruption is dependably significant. In the mining settlement of Asanol the colliery doctor babus were reporting all cases of sickness with vesicular eruption as chickenpox, although it was known that for many years smallpox had caused severe economic loss in the province. To remedy the resulting inaccuracy, an order was issued to report all cases of sickness with vesicular eruption as "smallpox" and to give, in addition, the dates of onset of fever and of outbreak of eruption. Analyses of many hundreds of such reports showed that in chickenpox the time interval between the onset of the fever and the beginning of the eruption never exceeded twenty-four hours, while in smallpox this period always exceeded forty-eight hours. Proof that this distinction is important was obtained in 1925-1926, when smallpox was epidemic in Bengal. At that time 65,795 of the inhabitants of Asanol were revaccinated, with success in 77 per cent. Ninety-four persons who had had chickenpox, as diagnosed by the time interval method, were also revaccinated with success in 75 per cent. In the cases of 108 persons who had suffered from a disease diagnosed also by the time interval method as smallpox, revaccination was unsuccessful. This method of diagnosis would not be dependable in that alleged form of mild smallpox called alastrim, in which a vesicular eruption occurs without fever or malaise. However, as Tomb points out, if such cases do occur they are without importance in public health work as they do not cause either morbidity or mortality. In his hands, differential diagnosis by the method outlined has proved "simple, accurate and unambiguous."—Jour. A. M. A., Aug., 27, 1927.

## FATALITY FOLLOWING VARICOSE VEIN INJECTION

O. A. Olson, Minneapolis (Journal A. M. A., Aug. 27, 1927), cites the case of a woman who, five days after receiving an injection of salt solution and calorose for varicose veins, fell dead. The postmortem diagnosis was varicose veins; plebitis and thrombosis of the right internal saphenous vein, and pulmonary embolism.

## BILATERAL DIAPHRAGMATIC PLEURISY SIMULATING PERFORATED GASTRIC ULCER

In the case reported by George L Carrington, Durham, N. C. (Journal A. M. A., April 30, 1927), the abdomen was explored with a preoperative diagnosis of perforated gastric or duodenal ulcer; ten days later a postoperative diagnosis of bilateral diaphragmatic pleurisy was established.

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